



Home Performance with ENERGY STAR®

SAMPLE AUDIT DATA COLLECTION FORM

CONTRACTOR INFORMATION

Contractor Name: _____ Date: _____

Company Name: _____ Phone: _____

PROPERTY INFORMATION

Owner's Name: _____ Year Built / Age: _____

Property Address: _____

City, State, Zip _____ Phone No: _____

Email: _____

HOUSE TYPE (Check One)

- ☐ Single Family ☐ Mobile Home ☐ Duplex ☐ Multi-family ☐ Condo
☐ Townhouse, end unit ☐ Townhouse, inside unit ☐ Apt., end unit ☐ Apt., inside unit

UTILITY INFORMATION

Electric Provider Name: _____ Acct #: _____

Heating Fuel Provider Name: _____ Acct #: _____

Other Fuel Provider Name: _____

CUSTOMER CONCERNS / NOTES:

HOUSE DIAGRAM

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	Base- ment	First Floor	Mid- Level	Second Floor	Other	Totals
Living Floor (ft2):						
Ceiling Height (ft):						
Volume (ft3):						

House Type: _____

Floors Above Grade: _____

Foundation Type: _____
(If mixed, list different types below)

Foundation Types:

Number of Bedrooms: _____

Number of Occupants: _____

Number of Bedrooms: _____

Number of Occupants: _____

Minimum Building Airflow Standard

Step 1: Ventilation Required for Building

$$\begin{aligned} \text{Airflow (cfm)} &= 0.35 \times \text{Volume} / 60 \\ &= 0.35 \times \text{_____} / 60 = \text{_____} \text{cfm} \end{aligned}$$

Step 2: Ventilation Required for People

$$\begin{aligned} \text{Airflow (cfm)} &= 15 \times \text{occupants (occupants = bedrooms + 1)} \\ &= 15 \times \text{_____} = \text{_____} \text{cfm} \end{aligned}$$

'N' Factors for Maryland	
# Stories	N Factor
1	20
1.5	17.8
2	16.2
2.5	15.2
3	14.4

Step 3: Using Higher Airflow Requirement, Convert to CFM50

$$\begin{aligned} \text{Minimum CFM50} &= \text{Airflow (cfm)} \times N \\ &= \underline{\hspace{2cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{2cm}} \text{CFM50} \end{aligned}$$

Step 4: Multiply BAS x 0.7 for Acceptable Range

$$\text{BAS} \times .7 = \underline{\hspace{2cm}} \text{CFM50} \times .7 = \underline{\hspace{2cm}} \text{CFM50}$$

BAS Range: to

BUILDING SHELL

Foundation Walls:

Descriptive Name: _____
 Wall Type: _____
 Masonry Thickness (in): _____
 Wall Length (ft): _____
 Wall Height (ft): _____
 Height Above Grade (ft): _____

Foundation wall Insulation - Interior /Exterior (circle one)

Continuous R-value: _____
 Frame Cavity R-value: _____
 Insulation Coverage
 Ft from Top of Wall: _____
 Ft from Bottom of Wall: _____

Slab Floor Areas:

Descriptive Name: _____
 Perimeter Ins. R-value: _____
 Und-Slab Ins. R-value: _____
 Und-Slab Ins.Width (ft): _____
 Radiant Slab (yes or no): _____
 Area (ft2): _____
 Depth Below Grade: _____
 Full Perimeter (ft): _____
 Exposed Perimeter (ft): _____
 On Grade Perimeter (ft): _____

Frame Floors:

Descriptive Name: _____
 Continuous Ins. R-value: _____
 Cavity Ins. R-value: _____
 Floor Covering: _____
 Total Area (ft2): _____

Rim and Band Joist Areas:

Descriptive Name: _____
 Area (ft2): _____
 Continuous Ins. R-value: _____
 Frame Cavity Ins. R-value: _____
 Joist Spacing (in o.c.): _____

Above -Grade Walls:

Descriptive Name: _____
 Continuous Ins. R-Value: _____
 Frame Cavity Ins. R-Value: _____
 Stud Size (Actual w x d, in): _____
 Stud Spacing (in o.c.): _____
 Area (ft2) _____

Outside Doors:

Descriptive Name: _____
 Type: _____
 R-value: _____
 Storm Door (yes or no): _____
 Door Area (ft2): _____
 Glass Area (ft2): _____
 Opaque Area (ft2): _____
 Wall Assignment: _____

Ceiling Areas:

Type (Attc or Cath): _____
 Continuous Ins. R-value: _____
 Cavity Ins. R-value: _____
 Bottom/Rafter Size (w x h, in): _____
 Bottom/Rafter Space (in o.c.): _____
 Gross Area (ft2): _____

Whole House Infiltration Rate

1. Base Pressure: _____ Pa
2. Fan Pressure: _____ Pa
3. House Pressure: _____ Pa
4. Fan Ring: Open A B C
5. Leakage Rate: _____ cfm
6. (x CNR 50 factor _____)

7. Infiltration Rate: _____ CFM50

House Pressure	Pre	Post
	Fan Pressure or CFM Flow	Fan Pressure or CFM Flow
1		
2		
3		
4		
5		

Air Leakage Sites (check all that apply):

- ☐ Chimneys
- ☐ Soil Stacks
- ☐ Electrical Penetrations
- ☐ Pocket Doors
- ☐ Plumbing Penetrations
- ☐ Band Joist
- ☐ Mechanical Chase
- ☐ Windows
- ☐ Void Around Stairwell
- ☐ Sill Plate
- ☐ Recessed Lights _____#
- ☐ Drop Soffits
- ☐ Porch Ceiling
- ☐ Open Partition Wall at Top Plate
- ☐ Tongue & Groove Vaulted Ceilings

- Other: _____
- Other: _____
- Other: _____

[illegible]

MECHANICAL SYSTEMS

Central Heating System: (if home has multiple heating systems, include information on reverse side of this sheet)

System Type: _____ Fuel Type: _____
Manufacturer / Model #: _____ Load Served: _____ %
Input (kBtuh): _____ Output (kBtuh): _____ Estimated Age: _____
Seasonal Efficiency: _____ AFUE Performance Adjustment (%): _____
Setpoint (F): _____ Automatic Thermostat? ☐ Yes ☐ No
Location: ☐ Conditioned area ☐ Attic ☐ Unconditioned basement/enclosed crawl space ☐ Garage/open crawl space
Furnace Filter Condition (check one): ☐ Good ☐ Fair ☐ Dirty ☐ Very Dirty

Central Cooling System: (if home has multiple cooling systems, include information on reverse side of this sheet)

System Type: _____ Fuel Type: _____
Manufacturer / Model #: _____ Output (tons): _____
Seasonal Efficiency: _____ SEER Load Served: _____ % Estimated Age: _____
Performance Adjustment (%): _____ Setpoint (F): _____ Automatic Thermostat? ☐ Yes ☐ No

Domestic Hot Water Heater:

Type: _____ Fuel Type: _____ Fuel Switch Opportunity?: ☐ Yes ☐ No
Manufacturer / Model #: _____ Size (gallons): _____ Energy Factor: _____ EF
Extra Tank Insulation: _____ Estimated Age: _____
Location: ☐ Conditioned area ☐ Attic ☐ Unconditioned basement/enclosed crawl space ☐ Garage/open crawl space
Chimney Liner Present? ☐ Yes ☐ No Water Heater Orphaned in Chimney? ☐ Yes ☐ No

Duct System:

Location:
☐ Open crawl space ☐ Enclosed crawl space ☐ Conditioned crawl space ☐ Unconditioned Basement
☐ Conditioned basement ☐ Attic, under insulation ☐ Attic, exposed ☐ Conditioned space
Number of Return Registers: _____ Insulation R-value: _____
Percent supply ducts in unconditioned space: _____ Percent return ducts in unconditioned space: _____

Lights and Appliances:

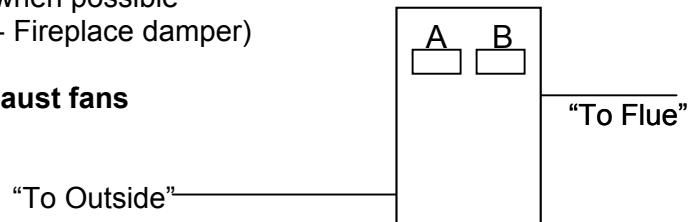
Clothes Dryer Fuel: _____ Oven/Range Fuel: _____ Percent Fluorescent: _____ Refrigerator Age: _____

Mechanical Ventilation System:

Fan Location	Flow Rate	Hours-Per-Day	Fan Watts		Vented to Exterior?	
			TEST	Pre test	Post test	
			Test Date			
			Ambient CO			
			Outdoor Temperature			

Combustion Safety Testing Form

1. Turn combustion appliance to pilot (Preventing operation during set-up)
2. Zero CO detector (Follow manufactures instructions)
3. **Record house ambient CO level**
4. **Record outdoor temperature**
5. Put house in winter condition (Including latching or locking windows)
6. Install hose; CAZ WRT (with respect to) Outside
7. Check furnace filter, replace if dirty when possible
8. Close all operable vents (Example -- Fireplace damper)
9. Clean lint filter in dryer
10. **Turn off all HVAC equipment, exhaust fans**



All Readings: Channel A CAZ WRT OUTSIDE

1. Baseline test (Interior doors open, furnace off, exhaust appliances off)
2. Turn on all exhaust appliances in home
3. Turn on furnace air handler, leave on only if it makes CAZ more negative
4. Close interior doors - as you do so measure the pressure difference between main body and room you are closing off (If negative leave door OPEN – If positive keep door CLOSED). Start with door farthest from CAZ and work back
5. Record worst case depressurization
6. Record dominate force(s) causing depressurization
7. Maintaining the house under **Worse** case conditions, proceed to test the appliances

Pre Test	Post Test

Combustion Appliance Zone (CAZ) Depressurization Limits (Pa.)

Venting Conditions	Limits (Pascals)
Orphan natural draft water heater (including outside chimneys)	-2
Natural draft boiler or furnace commonly vented with water heater	-3
Natural draft boiler or furnace with vent damper commonly vented with water heater	-5
Individual natural draft boiler or furnace	-5

Mechanically assisted draft boiler or furnace commonly vented with water heater	-5
Mechanically assisted draft boiler or furnace alone, or fan assisted DHW alone	-15
Exhaust chimney-top draft inducer (fan at chimney top); high static pressure flame-retention-head oil burner; and sealed combustion appliances	-50

Backdraft and CO testing results of atmospherically vented appliances

Appliance	Spillage P/F				Draft Test				Carbon Monoxide As measured before diverter			
	Stand Alone Test		Combined Test		Stand Alone Test		Combined Test		Stand Alone Test		Combined Test	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Water Heater												
Heating System												
Other												

Combined test of heating system and water heater must be performed if both units are tied into the same flue before entering the masonry chimney.

Combusting Efficiency

Water Heater: _____

Heating System: _____

(75% Eff or ↓: Recommend tune-up or change out) (80% Eff or ↓: Recommend tune-up or change out)

Combustion Safety Test Action Levels

CO Test Result*	And/Or	Spillage and Draft Test Results	Retrofit Action
0 – 25 ppm	<i>And</i>	Passes	Proceed with work
26 – 100 ppm	<i>And</i>	Passes	Recommend that the CO problem be fixed
26 – 100 ppm	<i>And</i>	Fails at worst case only	Recommend a service call for the appliance and/or repairs to the home to correct the problem
100 – 400 ppm	<i>Or</i>	Fails under natural conditions	<u>Stop Work:</u> Work may not proceed until the system is serviced and the problem is corrected
> 400 ppm	<i>And</i>	Passes	<u>Stop Work:</u> Work may not proceed until the system is serviced and the problem is corrected
> 400 ppm	<i>And</i>	Fails under any condition	<u>Emergency:</u> Shut off fuel to the appliance and have the homeowner to call for service immediately

* CO measurements for undiluted flue gases at steady state

Minimum Acceptable Draft Test Readings

Acceptable Draft Test Readings at Outdoor Air Temperature Ranges						
Degrees F	<10	11-30	31-50	51-70	71-90	>90
Pascals (Pa)	-2.5	-2.25*	-1.75*	-1.25*	-0.75*	-0.5

* Actual equation is $(T_{out}/40)-2.75$